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April 5, 2013

**Re: Response to Committee on Energy and Commerce  
Questions for Stakeholders**

Dear Sir or Madame,

Phillips 66 Company appreciates the opportunity to provide responses to the Questions for Stakeholder Comment contained in the Renewable Fuel Standard Assessment White Paper. Phillips 66 is an independent downstream company, created through the May 2012 repositioning of ConocoPhillips Company. We own and operate 11 refineries throughout the United States, producing gasoline and diesel transportation fuels. As such, we are an obligated party under the RFS provisions and have ongoing reporting and compliance responsibilities. We have been actively involved with EPA in all aspects of the RFS rulemaking over the years. We believe the RFS mandate is one that is unworkable and are very concerned over the potential for extreme uncertainty that it presents to the fuel supply network. We offer the following comments in response to the questions raised in this White Paper. In some instances, specific portions of a particular question posed are best answered by others with more expertise in that specific area (e.g. renewable fuel producers, auto manufacturers, etc.). Therefore, there are portions of several of the questions we have chosen not to answer in anticipation that those more qualified to address the specific issue will do so.

Phillips 66 is member of the American Fuel and Petrochemical Manufacturers (AFPM) association as well as the American Petroleum Institute (API). We have assisted with the development of the comments and support the responses submitted by those organizations. We are providing additional comments to further emphasize certain key points with respect to the RFS issue.

#### **Questions for Stakeholder Comment**

**1. To what extent was the blend wall anticipated in the debate over the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007?**

The Energy Policy Act of 2005 (EPAct05) mandated renewable fuel volumes starting at 4.0 billion gallons for 2006 and increasing to 7.5 billion gallons in 2012. At the time the legislation was enacted, the gasoline demand forecast was increasing over time. In the EPA proposed rule for RFS1, EPA projected the renewable standard to go from 3.71% in 2007 to 4.70% in 2013. Use of ethanol in the Reformulated Gasoline areas had become the norm and was anticipated to be able to meet the majority of the RFS requirement. The blendwall was not anticipated with EPAct05 due to the level of renewable fuel volume requirement coupled with the level of projected gasoline demand.

The Energy Independence and Security Act of 2007 (EISA07) volume requirements were much higher and much more complicated to try and project forward, given the then existing and continuing uncertainty associated with the development of cellulosic and advanced biofuels. At the time that EISA07 was signed into law, the gasoline demand projections still showed sharply increasing demand in the future. Any evaluation of the blend wall required multiple assumptions to be made. Among the information required to be assumed in addition to increasing demand were: how much, if any, cellulosic would be available, whether EPA would waive Advanced



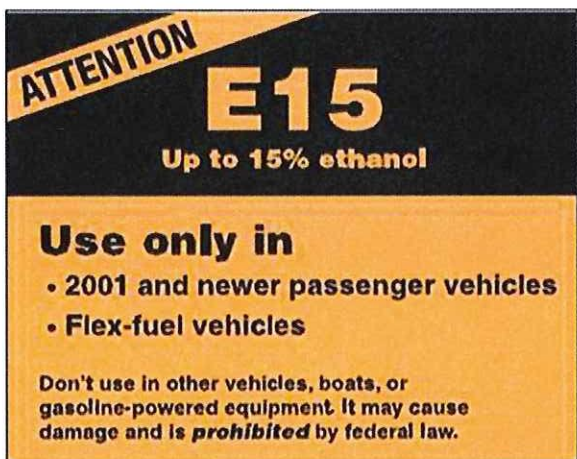
and Total Renewable volumes commensurate with a waiver in the cellulosic requirement, whether entities would use sugar based ethanol to meet any incremental advanced volume requirements, etc. etc. Once the legislation was signed, the industry began to try and evaluate potential impacts. Due to the complicated nested nature of the standards, the uncertainty concerning any EPA waiver action, the difficulty in projecting availability of surplus, carryover RINs, and the inherent difficulty in forecasting fuel demand, the projected blend wall timing has been much debated. As discussed below, some refiners will likely be facing blend wall impacts this year. What is clearly evident is that the blend wall timing has been accelerated beyond initial expectations due to the continued decline in gasoline demand. Neither EPA nor the industry foresaw this decline at the time the legislation was enacted and initial evaluations completed.

**2. What are the benefits and risks of expanded use of E-15 to automakers, other gasoline powered equipment makers, refiners, fuel retailers, and others involved in the manufacture and sale of gasoline and gasoline-using equipment?**

There are a number of risks associated with the production, distribution and sale of any E15. EPA relied on catalyst durability testing done by the Department of Energy in making their waiver decision. EPA did not await the outcome of the more rigorous and thorough E15 impact testing on engine durability and fuels systems conducted by the Coordinating Research Council (CRC), which have now been completed. This testing has shown that vehicles included in the EPA waivers (i.e., 2001 and newer vehicles) have failed tests conducted on E15. The number of vehicles potentially at risk in the market is significant, potentially numbering in the tens of millions.

Although EPA has promulgated an E15 mis-fueling mitigation regulation, fuel suppliers and automotive manufacturers must rely on consumers making the proper choice. As was evident during the lead phase-out, consumers can purposely choose to mis-fuel and will do so if they believe there is economic incentive to do so (should the fuel that could cause harm be lower priced, etc.).

EPA is relying on pump labeling to avoid customer mis-fueling. The current wording of the E15 label does not refer customers to their owner's manuals or their vehicle manufacturer for guidance. Vehicle manufacturers have stated that use of E15 will void the vehicle's warranty. As many of the vehicles that EPA says may be fueled with E-15 are still under warranty, this is a significant impact to US citizens who may not realize that the US government is recommending an action that voids their warranty. Rather, the broad wording of the EPA label could lead a consumer to believe that use of E15 in any vehicle 2001 and newer is without risk or consequence. The results of the CRC research prove this is a faulty assumption. Provided below is the label prescribed in the EPA regulation.



As we have discussed, there is reason for concern with mis-fueling. Suppliers throughout the distribution chain are concerned with being held liable for the consequences of mis-fueling. This concern is present at all levels within the distribution chain from the original refiner to the retailer.



**3. What are the risks of the introduction and sale of E-15 to the owners of pre-2001 motor vehicles, boats, motorcycles, and other gasoline-powered equipment not approved to use it? Are there risks to owners of post-2001 vehicles? How do these risks compare to the benefits of the RFS?**

The CRC research referenced previously clearly shows there is risk in using E15 in post-2001 vehicles. An API statement released following the completion of the rigorous CRC testing program (dated January 29, 2013) stated

"A key part of the testing – which was conducted by the Coordinating Research Council (CRC), an organization created and supported by the oil and auto industries – was completed last May. That research demonstrated that E15 could damage valve and valve seat engine parts in some of the tested vehicles, which included a number of common brands.

Now, more CRC research results are available. They conclude that putting E15 in America's gas tanks could damage millions of vehicles and put motorist safety at risk."

The risks identified by the CRC appear to be an unacceptable level of risk regardless of any perceived benefits (which this white paper has not identified so it uncertain what benefits are being referred to).

Phillips 66 notes that EPA's pump label states that it is unlawful to use E15 in vehicles and equipment not covered under the partial waiver. Consequently, there is a risk for enforcement for individuals who willfully or inadvertently misfuel. However, the greater risk is the one noted above – damage to that individual's vehicle and/or loss of warranty.

**4. What is the likely impact, if any, of the blend wall on retail gasoline prices?**

Although Phillips 66 will not speak to gasoline prices, we can comment on refiners' ability to comply and what actions they may be forced to take as well as the projected impact on the RIN market. RINs are assigned to renewable fuel when it is produced. In order for the RINs to be available for compliance demonstration, the renewable fuel must be purchased and used in blending. Therefore, the issue is not one of renewable production capability but rather one of the ability to blend the renewable fuel into the fuel supply, hence the blend wall issue. Once the blend wall is reached, and there is no practical way to increase the volume of ethanol in the gasoline supply, obligated parties will look for ways to reduce their RIN obligation through reducing their gasoline and transportation diesel volumes (through lower refinery production, increased exports, or a combination). These actions, coupled with any increase in RIN prices, will likely affect gasoline and diesel prices.

**5. What is the timing of the implementation challenges related to the blend wall? Will some entities face difficulties earlier than others?**

The blend wall impact will be felt by various companies at different times, depending on the business model they have historically employed. Some companies will experience an impact in 2013.

As the mandated volumes increase and gasoline demand continues to decrease, the industry will no longer be able to generate surplus RINs and will be forced to deplete any banked RINs to accomplish compliance with the standard. RINs are not "centrally" banked so some companies currently have banked RINs while others do not. In general, one can categorize refiners into 3 different segments. The differentiation factor is the amount of marketing volumes they have direct control over in comparison to their refining production. This factor impacts their ability to generate surplus RINs, bank them, and carry them over for use in meeting future compliance obligations. Refiners, as a whole, own and operate a very small percentage of the retail outlets (about 95% are owned and operated by independent businesses), however, refiners do have supply agreements and branding arrangements with wholesale and retail marketers. The three broad categories of refiners and the differing impacts are as follows:

- **Refiner A** – This refiner has more gasoline and diesel marketing sales volumes than its refinery production (which determines its obligation). Generally, this refiner has had a natural long position in RINs, will have been able to accumulate a surplus of RINs over the past couple of years and has RINs in its bank. It will now likely need to use its banked RINs to meet its future compliance obligation so will not look to sell RINs to others.



- **Refiner B** – This refiner has gasoline and diesel marketing sales volumes that are balanced with its refinery production. This refiner may have some surplus RINs in its bank if the refiner has blended at 10% in prior years when the standard required less than 10% blending. It will likely need to deplete its banked RINs for compliance, perhaps as early as 2013.
- **Refiner C** – This refiner's gasoline and diesel marketing sales volumes are significantly less than its refinery production. Historically this refiner has had a natural short position in RINs and has had to rely on RIN purchases from others to meet its compliance obligation. As the industry's capability to blend more ethanol than required is eliminated, refiners who have historically sold RINs will need to use them to meet their own future compliance obligation and will not be in a position to sell to others. Refiner C will be facing a compliance shortfall in 2013 and will face increasing compliance challenges going forward.

Obligated parties who are short of RINs (e.g. Refiner C in the above scenario) have limited options to secure the additional RINs they need for compliance. Their obligation is created through their production of gasoline and transportation diesel but they are selling volumes of unblended product to others in the market. One question would be whether these refiners could leverage the sale or exchange of their product to acquire RINs (e.g. make acquisition of RINs a condition of the product sale). While on paper a perfect balance might be theorized, in practice, the petroleum product market is not conducive to this type of arrangement in all cases. There are two basic types of transactions that take place for bulk product sales – term or contract sales and spot sales. In the case of contract sales, some of the long term contracts were in place prior to the RFS2 regulations and therefore do not contain RIN provisions. Spot sales can involve multitudes of different parties even in a single transaction. Brokers and other non-obligated parties may be the purchaser and do not have ready access to RINs to provide. Also, the product can change ownership many times over before it is blended with ethanol and sold to the wholesale or retail customer, making it virtually impossible to ensure RIN acquisition through the long chain of product owners.

Furthermore, while a theory of perfect exchange might be proposed on paper between non-blended gasoline sales and RIN credits to satisfy RFS obligations, it would only apply when there are a sufficient number of total credits available from blending to balance the total obligation. The theory completely breaks down when the total obligation increasingly exceeds the RINs available through blending, such as in the current situation.

**6. Could the blend wall be delayed or prevented with increased use of E-85 in flexible fuel vehicles? What are the impediments to increased E-85 use? Are there policies that can overcome these impediments?**

There are currently not enough E85 fueling outlets or demand from flex fuel vehicle owners to supply the incremental required ethanol volume (the volume required that exceeds 10% of the gasoline pool). Use of E85 in a FFV results in a significant loss of fuel economy (up to 30%) so incentivizing customers to purchase and use E85 is difficult.

According to the DOE's Alternative Fuels Data Center, there are 2,329 E85 stations in the U.S. In 2013, each station would need to sell approximately 240,000 gallons to use the incremental corn based ethanol required above E10. This volume will be significantly larger if additional sugar based ethanol must be used by obligated parties to meet the advanced biofuel requirements. According to the Energy Information Administration (EIA), in 2012 there were 891,000 barrels (37.4 million gallons) of E85 produced, or an annual average throughput of about 16,000 gallons per E85 station. Furthermore, according to the EPA in the RFS2 Regulatory Impact Analysis, the National Association of Convenience Stores reported annual throughput for all types of fuel varied from approximately 142,000 to 164,000 gallons. As can be seen from these numbers, the required volume increase at existing E85 fueling stations to meet the ethanol mandate is well above current capacities and is not feasible.

Increasing the number of E85 stations is also not a viable option. It is costly for the retail station owners as it requires new tankage and pumps. EPA addressed the cost for installing new E85 dispensing capability at retail stations in the RFS2 Regulatory Impact Analysis. EPA states

"the cost of an E85 installation with one dispenser is estimated at \$131 thousand, the cost of for a new E85 installation with 2 dispensers is estimated at \$154 thousand, and the cost of a new E85 installation with 3 dispensers is estimated at \$177 thousand. The cost of upgrading an existing E85 facility with a single dispenser to add 2 additional dispensers is estimated at \$130 thousand."



These costs, coupled with low consumer acceptance and demand for E85, present very high investment risk for the independent retailer and thus what many consider to be insurmountable barriers to the expansion of E85.

**7. Is E-15 misfueling unavoidable? Are there lessons from the labeling and dispensing of diesel, E-85 and other fuels that prevent their misfueling that can also be applied to E-15? What specific actions are companies taking to address potential misfueling concerns under MMPs?**

With the millions and millions of consumers in the U.S. making fuel decisions, it is inevitable that consumers will mis-fuel – either intentionally for various reasons, or inadvertently due to inattention or lack of information. Currently, there are no effective measures to ensure proper fueling by all consumers. Labeling must be specific (current EPA required label is not sufficient) and labeling will not deter those who purposely mis-fuel.

The industry continues to believe that EPA did not have the authority to issue a partial waiver, and it continues to legally challenge EPA's issuance of the waiver. The Clean Air Act clearly states that any fuel must be acceptable for use in any engine while EPA has stated E15 to be illegal for use in a number of different engines. Regardless of the potential for mis-fueling, CRC research clearly indicates that a significant number of vehicles covered under the waiver are at risk for failure.

**8. Can blend wall implementation challenges be avoided without changes to the RFS? Is the existing EPA waiver process sufficient to address any concerns? If the RFS must be changed to avoid the blend wall, what should these changes entail? Should any changes include liability relief or additional consumer protections for addressing misfueling concerns?**

Phillips 66 believes the blend wall challenges require statutory changes to the RFS. EPA actions thus far have not demonstrated that EPA's waiver process will be sufficient to address these challenges long-term. EPA has two different types of waiver authority. EPA can waive the cellulosic (and biomass-based diesel) volumes based on analysis of supply availability. EPA also has the authority to reduce the Advanced and Total renewable volumes by a commensurate amount. However, the required volume of undifferentiated advanced biofuel continues to increase (the advanced biofuel required above the biomass-based diesel volume requirement). If sugar based ethanol is needed to satisfy this requirement, it adds to the ethanol volume problem (no practical way to incorporate these high ethanol volumes into the gasoline pool). Therefore, there will be compliance challenges even if EPA reduces the advanced and total volumes. Cellulosic production (if any occurs) that is ethanol also adds to the ethanol volume problem.

While EPA also has general waiver authority that allows for them to reduce volumes in light of economic hardship, it has thus far denied two waiver requests based on this premise. Most recently (in 2012), it denied a state-coalition request for a waiver tied to the severe drought impacts. EPA's action in these waiver denials does not leave Phillips 66 optimistic about the ability to obtain a future waiver through this mechanism.

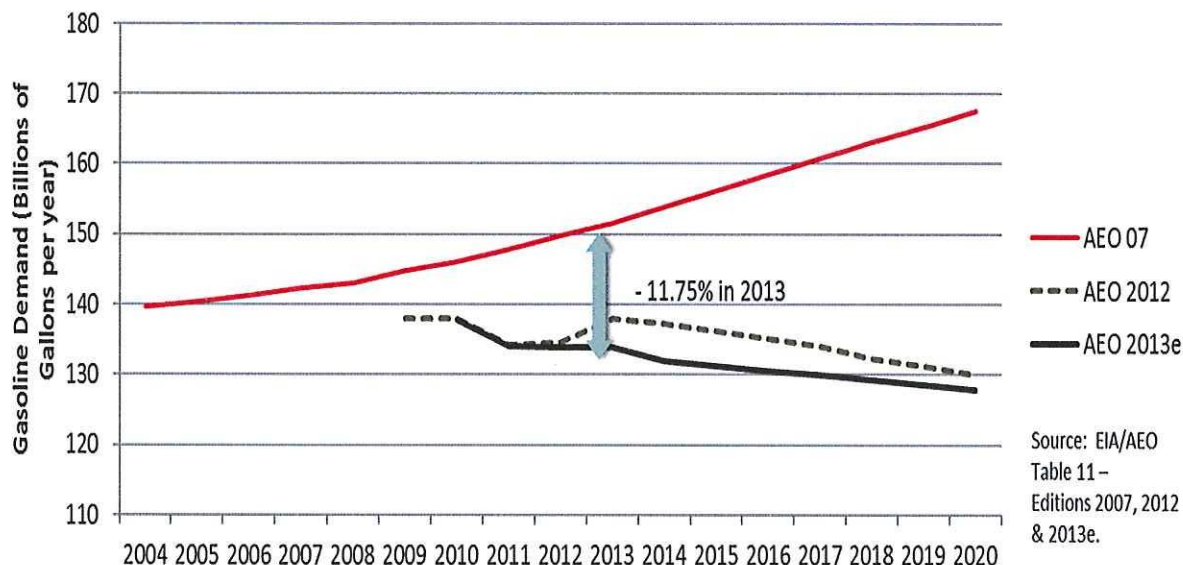
A complete repeal of the RFS is warranted. Renewable fuels should be required to compete in the market place with other fuels. If ethanol blending economics are favorable relative to the cost of ethanol, then fuel suppliers will use ethanol. No forced mandate should be implemented. Most consumers want to have a choice, including the ability to buy gasoline without any ethanol. Unfortunately, with the current ethanol volume requirements in the RFS, suppliers cannot provide consumers with that choice and comply with their RFS obligation.

The E15 waiver should be rescinded. EPA lacked the authority to approve a partial waiver. Rescinding the waiver would eliminate the mis-fueling and the associated liability issues.

**9. Have the 2017 and Later Model Years Light Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy standards for cars and light trucks changed the implementation outlook of the RFS?**

The CAFÉ standard exacerbates the blend wall problem that has already developed. When the Energy Independence and Security Act of 2007 was enacted, continued growth in gasoline demand was being forecast. Gasoline demand has declined over the past several years and the future CAFÉ standards will accelerate this decline. This will widen the gap between the volumes of ethanol that can be practically blended into produced gasoline versus what is required by the mandate. The following graph shows that for 2013, the forecasted gasoline demand is now almost 12% lower than when EISA07 was passed.





**10. What other methods, including the use of drop-in fuels, are available to industry to ease the challenge posed by the blend wall?**


Renewable drop-in fuels (gasoline or diesel fuels or blendstocks produced from renewable feedstocks) are still in the research and development phase and face continued cost and technology scale-up challenges. Sufficient volumes are not currently available to provide an alternate compliance option. In the EPA's proposed rule for the 2013 Renewable Fuel Standards, it projects up to 150 million gallons of other advanced biofuels to be available in 2013 with 49 million of that total being ethanol. That leaves 101 million of non-ethanol volume projected (with some of the volume as CNG). Even if this volume does materialize, it is far short of the volume reduction needed in ethanol to prevent the per gallon ethanol requirement from exceeding 10%.

**11. What are the impacts on renewable fuel producers if the RFS is changed to avoid the blend wall?**

Phillips 66 Company is not currently a renewable fuel producer and cannot comment on the direct impact. However, the markets, not mandates, ought to freely determine the array of fuel choices available. If blending economics are favorable relative to the cost of the renewable blend stock, then they will be utilized in the supply of transportation fuels.

Thank you again for the opportunity to comment on this very important issue.

Yours very truly,

  
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April 5, 2013

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**RE: POET, LLC comments on the U.S. House of Representatives Committee on Energy and Commerce's (Committee) first in a series of white papers<sup>1</sup> reviewing the Renewable Fuel Standard (RFS)**

### **Introduction**

POET, LLC (hereinafter, POET) is pleased to comment on the Energy and Commerce Committee white paper on Blend Wall / Fuel Compatibility Issues that was released on March 20, 2013 (hereinafter, White Paper).<sup>2</sup> The White Paper is the first in what is anticipated to be a series of analyses by the committee on the Renewable Fuel Standards (RFS) that are implemented by the U.S. EPA.

### **About POET**

POET, the largest ethanol producer in the world, is a leader in biorefining through its efficient, vertically integrated approach to production. The 25+ year-old company produces more than 1.6 billion gallons of ethanol annually from 27 production facilities nationwide. POET is also the world's largest producer by volume of distillers' dried grains with solubles (DDGS), a highly nutritious animal feed produced as a coproduct of the ethanol production process. POET first began producing its trademarked Dakota Gold distillers' grains product in 1993. POET now produces more than 4.2 million tons of Dakota Gold per year and exports 800,000 tons a year to more than a dozen countries. For more information on POET visit [poet.com](http://poet.com).

POET also owns and operates a pilot-scale cellulosic ethanol plant in Scotland, SD, which uses corn stover as a feedstock. Additionally, POET has entered into a \$250 million joint venture with Royal DSM, called POET-DSM Advanced Biofuels, with plans to complete construction on one of the Nation's first commercial-scale cellulosic ethanol facilities in late 2013. This first plant, in Emmetsburg, Iowa, is expected to produce 20 million gallons of ethanol in its first year. The joint venture intends to extend the technology to the remaining 26 plants in the POET network, with an anticipated total production of

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<sup>1</sup> RENEWABLE FUEL STANDARD ASSESSMENT WHITE PAPER: Blend Wall/Fuel Compatibility Issues, <http://energycommerce.house.gov/sites/republicans.energycommerce.house.gov/files/analysis/20130320RFSWhitePaper1.pdf>

<sup>2</sup> See e.g., <http://energycommerce.house.gov/press-release/committee-launches-bipartisan-review-renewable-fuel-standard-white-paper-examining-blend-wall-challenges>.



up to 1 billion gallons of cellulosic ethanol per year once all plants are operational. With this joint venture, POET expects to lead the industry in fulfilling one of the central goals of Congress when it created the RFS program—the large-scale development of cellulosic ethanol. For additional information on POET-DSM visit [poetdsm.com](http://poetdsm.com).

## **Preface**

Ethanol has been a part of the automotive fuel pool for decades. Its attractiveness as a domestically attainable, renewable, economically viable, and environmentally friendly fuel has led to a dramatic increase in its use and consequent production over the past decade. To this point, due to ethanol's favorable pricing as a fuel component, we have seen an increase in the amount of retail stations offering Ethanol Fuel Blends<sup>3</sup> (i.e. E85) and Mid-Level Ethanol Blends<sup>4</sup> (hereinafter, MLEBs). According to the U.S. Department of Energy Alternative Fuels Data Center website there are now 2,329 E85 pumps across the nation.<sup>5</sup> In addition, according to a Google map maintained by the American Coalition for Ethanol, there are currently 342 retail stations across the nation that offer MLEBs.<sup>6</sup> All this is to say that the RFS has begun to have its intended impact, which is to increase the use of domestically produced renewable fuels. If allowed to work, the RFS will continue to provide the changes needed and benefits desired when the Energy Independence and Security Act of 2007 (hereinafter, "EISA") was enacted.

POET's subsequent comments focus on questions 1, 5, 6, 8, and 11 in the White Paper.

### **1. To what extent was the blend wall anticipated in the debate over the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007?**

As noted in the White Paper, the RFS was created by the Energy Policy Act of 2005 and greatly expanded under EISA. The White Paper describes the blend wall as, "the limit at which ethanol can be readily added to the gasoline supply in order to comply with the RFS" and that, "the targets in the RFS may soon necessitate that more than 10 percent be added to the gasoline supply."

The so-called "blend wall" issue is heightened by increased renewable volume-based targets at a time of decreasing petroleum use, thus requiring a greater overall percent of biofuels blended into fuels being used. However, as discussed in more detail below, these blend wall issues can be adequately addressed through the continued widespread use of E10, an increased use of E15, an increase in production and sale of FFVs, and expanded alternative fuel (e.g. E85 and MLEBs) retail distribution infrastructure.

<sup>3</sup> Ethanol Fuel Blends (i.e. E85) is defined by ASTM D5798-12 as fuels that contain 51 to 83 volume % ethanol.

<sup>4</sup> Mid-Level Ethanol Blends (MLEBs) is defined by ASTM D7794-12 as fuels with ethanol concentrations greater than those suitable for conventional-fuel vehicles and less than the minimum ethanol content specification limits of Specification D5798

<sup>5</sup> [http://www.afdc.energy.gov/fuels/ethanol\\_locations.html](http://www.afdc.energy.gov/fuels/ethanol_locations.html)

<sup>6</sup>

<http://www.google.com/maps/ms?ie=UTF8&hl=en&msa=0&msid=114795702092705781866.0004506e7cf3ae206a7c0&ll=38.959409,-97.119141&spn=29.323509,54.140625&z=4>



Regarding whether the blend wall was anticipated, first and foremost it is important to remember that the blend wall challenges were the very reason Growth Energy submitted its Green Jobs Waiver on March 6, 2009<sup>7</sup>. In response to this waiver request, on October 13, 2010, the EPA granted a partial waiver to allow fuel and fuel additive manufacturers to introduce into commerce gasoline that contains greater than 10 volume percent ethanol and up to 15 volume percent ethanol (i.e. E11-E15) for use in model year 2007 and newer light-duty motor vehicles; and then on January 21, 2011, this partial waiver was expanded to include 2001 and newer light-duty motor vehicles. And finally, on June 23, 2011, the EPA finalized regulations to help prevent misfueling of vehicles, engines, and equipment not covered under the partial waiver for E15. All this is to say that the blend wall has been obviously and undeniably anticipated for many years.

Additionally, Congress, at the time of enacting the RFS, particularly the 2007 amendments thereto, would have been aware of the potential for a “blend wall” and solutions thereto. For instance, Congress would have been aware that E10 had been approved by EPA (which took place in the 1970s, as noted in the White Paper). Congress would also have been aware that FFVs are available that can use higher ethanol blends. Furthermore, Congress would have been aware that Clean Air Act provisions exist that provide for the ability to use fuels like E15, MLEBs, and E85. As an example § 225 of the EISA included a provision that the Department of Energy, in consultation with the Department of Transportation and EPA, “conduct a study of whether optimizing flexible fueled vehicles to operate using E-85 fuel would increase the fuel efficiency of flexible fueled vehicles.”

Congress was also aware of the role that MLEBs may be able to play in satisfying demand for transportation fuel. For instance, one of the proposed Senate amendments of what became the RFS2 called for a, “Study of increased consumption of ethanol-blended gasoline with higher levels of ethanol,” which would have required EPA and other federal agencies to examine the feasibility of using higher-level ethanol blends.<sup>8</sup> Another reference in the Congressional Record stated that Congress should, “Promote the use of higher blends of ethanol in the existing fleet of automobiles” by instructing EPA, “to conduct analysis of the viability of using higher blends of ethanol (including E-15, E20, E-30, and E40) in the existing fleet of automobiles by January 1, 2009.”<sup>9</sup>

Moreover, in enacting RFS provisions, members of Congress would have been aware that reducing our nation’s imports of foreign oil, and overall oil use, was an important national goal. Indeed, that was one of the key reasons for enacting the RFS. Furthermore, in EISA, Congress specifically required significant increases in the corporate average fuel economy (hereinafter, CAFE) standards. Section 102 of EISA required that the Secretary of Transportation prescribe CAFE standards, “to achieve a combined fuel economy average for model year 2020 of at least 35 miles per gallon.”<sup>10</sup> Major new CAFE standards increasing the energy efficiency of vehicles were proposed shortly thereafter, in 2009.

<sup>7</sup> Application for a Waiver Pursuant to Section 211(f)(4) of the Clean Air Act for E15, Submitted by Growth Energy on Behalf of 52 United States Ethanol Manufacturers, March 6, 2009.

<sup>8</sup> 153 Cong. Rec. H14277 (Dec. 6, 2007).

<sup>9</sup> 153 Cong. Rec. S7600 (June 13, 2007).

<sup>10</sup> EISA 2007 § 102 (codified at 49 USC § 32902(b)(2)(A)).



What may not have been fully predicted at the time that Congress enacted RFS requirements is the scope and magnitude of the petroleum industry's opposition to implementing duly-enacted legislation promoting renewable fuels. The petroleum industry's opposition to the RFS essentially amounts to: (1) opposing our nation's energy security through the increased use of a domestic fuel source (biofuels), (2) opposing the modest fuel diversification that the RFS creates, (3) opposing the greenhouse gas reduction and other environmental and public-health benefits of biofuels versus petroleum, and (4) opposing what can be a superior, high-octane fuel that allows for downsized optimized engine design that enables the better fuel economy required by EISA.

Finally, when considering blend wall issues, it is important to not lose sight of the reasons why Congress enacted the RFS, including the goals of reducing greenhouse gas emissions and improving our nation's energy security through the use of renewable fuels. This intent is plainly manifested in the clear targets that Congress set for renewable fuels, as well as purposefully narrow RFS requirements for when certain requirements can be waived or reduced. The RFS's environmental and energy security benefits should not be jeopardized by failures by EPA and petroleum industry members to take reasonable measures to address the blend wall through the greater use of ethanol. Had E15 been implemented in the marketplace when the waiver was first approved, we would not be facing the short-term blend wall concerns that we have currently; and with a continued disciplined focus on the production and sale of more FFVs and expanding alternative fuel retail distribution infrastructure, we can ensure there are no blend wall concerns through the remainder of the RFS implementation period.

**5. What is the timing of the implementation challenges related to the blend wall? Will some entities face difficulties earlier than others?**

As noted previously, the RFS has been a successfully implemented program, with mandated RFS volumes ramping up over time. Compliance for the RFS is achieved by regulated producers and importers of gasoline (and diesel) submitting Renewable Identification Numbers (hereinafter, RINs) that are generally associated with a given volume of renewable fuels production. In the past, because ethanol is a valuable component of the fuel supply to the refiners, more ethanol has been blended than is mandated by the RFS. This has resulted in the generation of an excess amount of RINs that can carry over and be used for compliance in 2013 and future years. The excess RINs generated over past years ensures that the blend wall should not cause significant problems with implementing the RFS in 2013. Furthermore, a recent EPA proposed rule accurately noted that "corn-ethanol production capacity in 2012 was 14.9 bill gal, compared to the 13.8 bill gal needed to meet the RFS requirements in 2013."<sup>11</sup> In short, sufficient biofuels production capacity, in conjunction with surplus RINs available for compliance, exists to meet 2013 RFS requirements.

Nevertheless, blend wall concerns make it important that EPA act now to promote the use of E15 immediately, incentive auto makers to produce many more FFVs, incentivize retail stations to install pumps that can dispense any blend of ethanol from 0% to 85%, and create a new MLEB Certification Fuel so the automotive companies can optimize their engines to take advantage of ethanol's high octane properties.

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<sup>11</sup> EPA, *Regulation of Fuels and Fuel Additives: 2013 Renewable Fuel Standards*, 78 Fed. Reg. 9,282, 9,286 (February 7, 2013).



Regarding timing issues, incumbent petroleum interests who have been fighting the RFS for years have obviously also been aware of the RFS mandates for years. Those who continue to oppose the RFS and have not made business decisions to introduce lower-cost, domestic biofuels into their fuels may be impacted sooner than others; however, this recalcitrance among some incumbent petroleum interests should not be cause for altering the RFS, or delaying the introduction of greater biofuels blends into the marketplace.

As discussed previously, the sale of E15 received approval back in October of 2010. It is worth noting that "E15" can be gasoline ethanol blends that contain anywhere from 11 percent volume to 15 percent volume ethanol and does not necessarily need to contain 15 percent from the start. This is important because this fact allows for a roll-out of higher ethanol blends for use in unmodified vehicles that 1) keeps pace with the RFS required volumes and 2) helps minimize any misfueling and related liability concerns. These fuels should be used now to overcome any short-term blend wall issues. Any potential longer-term blend wall concerns can be mitigated and potentially eliminated by the production and sale of increased numbers of FFVs and the wide-spread availability of retail fuel distribution infrastructure for alternative fuels.

**6. Could the blend wall be delayed or prevented with increased use of E-85 in flexible fuel vehicles? What are the impediments to increased E-85 use? Are there policies that can overcome these impediments?**

The use of higher ethanol blends in FFVs can certainly help to prevent the blend wall. According to the Flex Fuel Awareness Campaign there are now over 14 million FFVs on the road today<sup>12</sup>; and according to the U.S. Department of Energy Renewable Fuels Data Center there are now 68 different models of FFVs available<sup>13</sup>. While this represents a reasonably significant number of vehicles able to use higher blends of ethanol, it is imperative that the production and sale of an increasing number of FFVs is properly incentivized by accounting for the greenhouse gas reduction and tailpipe emission improvements that higher blends of ethanol provide. In addition, it is equally important that a simultaneous investment be made in retail fuel distribution infrastructure for the alternative fuels utilized by the FFVs.

Policies that can help delay reaching the blend wall regarding FFVs would be continued work with EPA and NHTSA on the fuel economy and greenhouse gas standards. More specifically, if ethanol and other biofuels can be properly credited by EPA to reflect their true reduction of greenhouse gas emissions, it could further incentivize the market and development of FFVs.

It is also important to note that certain petroleum companies have franchise contracts that prohibit their retail franchisees from offering certain blends of higher ethanol content fuels. This

<sup>12</sup> <http://www.ffv-awareness.org/>

<sup>13</sup> [http://www.afdc.energy.gov/vehicles/search/light?fuel\\_type\\_code=E85\\_GSL#pane=autos&pane\\_page=%3Fautos%255Bcategory\\_id%255D%3D%26autos%255Bfuel\\_id%255D%3D10003%26autos%255Bmanufacturer\\_id%255D%3D%26autos%255Bmodel\\_years%255D%255B%255D%3D2014%26autos%255Bmodel\\_years%255D%255B%255D%3D2013%26page%3D1](http://www.afdc.energy.gov/vehicles/search/light?fuel_type_code=E85_GSL#pane=autos&pane_page=%3Fautos%255Bcategory_id%255D%3D%26autos%255Bfuel_id%255D%3D10003%26autos%255Bmanufacturer_id%255D%3D%26autos%255Bmodel_years%255D%255B%255D%3D2014%26autos%255Bmodel_years%255D%255B%255D%3D2013%26page%3D1)





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practice is discriminatory to renewable fuels, is in direct opposition to the goals of EISA and must be completely eliminated if the RFS required volumes are to be maintained.

**8. Can blend wall implementation challenges be avoided without changes to the RFS? Is the existing EPA waiver process sufficient to address any concerns? If the RFS must be changed to avoid the blend wall, what should these changes entail? Should any changes include liability relief or additional consumer protections for addressing misfueling concerns?**

Yes, blend wall implementation challenges can be avoided without changes to the RFS. In particular, changes must not be made to weaken the biofuels use targets in the RFS, as doing so would jeopardize the production of next generation cellulosic biofuels (which are now starting to scale up in terms of commercial production) and jeopardize the host of other environmental and energy security benefits brought about by the RFS. Specifically, means of meeting the RFS targets, as they are currently stated, include the following:

- 1) An increased production and sale of FFVs in the U.S.
- 2) Expanded alternative fuel (e.g. E85 and MLEB) retail distribution infrastructure
- 3) Widespread sale of E15 (i.e. E11 to E15)

Notably, the RFS already contains measures to address any shortfalls in biofuels production that may arise. For instance, in the event that a projection of cellulosic ethanol production in an upcoming year is below the RFS target, such target must be reduced. See CAA § 211(o)(7)(D). EPA can and has made use of this provision.

Even more importantly, EPA has the authority to waive the RFS requirements, in whole or in part, if there is inadequate domestic supply to meet the mandate, or if implementation of an RFS, "requirement would severely harm the economy or environment of a State, a region, or the United States." See CAA § 211(o)(7)(A). Thus, the blend wall will in practice never cause severe harm to the economy because if an unsolvable issue were to truly arise, EPA would issue a waiver.

Regarding E15 specifically, POET believes that concerns regarding E15 misfueling have been overblown, and that reasonable measures independent of legislative changes can address potential misfueling. To this point, as previously mentioned, the E15 waiver allows for the distribution of fuel containing any amount of ethanol greater than E10 and up to E15. Any perceived risk and related liability anxiety associated with the introduction of fuels containing greater than 10 percent volume can be mitigated by first introducing E11 and then ramping up the concentration over time as required volumes in the RFS necessitate. It is also important to point out that E15 (at the 15 percent volume ethanol level) is one of the most tested fuels in history. Before approval of the waiver, the Department of Energy tested 86 vehicles on E15 for six million miles, without any concerns.

**11. What are the impacts on renewable fuel producers if the RFS is changed to avoid the blend wall?**

If the RFS target volumes are reduced, this could have a severe, adverse consequence on renewable fuel producers as well as the entire rural/agricultural community. Regulatory predictability (i.e. maintaining the RFS as-is) is essential to encourage continued investment in cellulosic and other





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advanced biofuels due to the control petroleum has over the fuel supply today. The RFS is critical to creating a floor level of biofuels demand to justify the significant investment that needs to be made in demonstrated, but nevertheless cutting-edge, technology such as cellulosic biofuels.

Furthermore, the critical role of existing, first-generation facilities in supporting cellulosic and other advanced biofuels must be understood. Many biofuels producers rely on revenue streams from existing facilities to justify the investment in next-generation facilities. Furthermore, existing and advanced biofuels facilities can also have physical synergies. For example, POET can expand cellulosic production through a "bolt-on model" whereby a cellulosic facility is sited next to an existing grain-based facility, thereby making use of existing infrastructure, including electricity, water, railroad access, and biomass supply (e.g., corn stover from a similar footprint of farms that supplies corn to the pre-existing ethanol facility). This bolt-on model, currently under construction by POET-DSM Advanced Biofuels, provides for potential rapid scale up of cellulosic ethanol production. As discussed earlier this first of its kind bolt-on model is under construction at POET's Emmetsburg, Iowa facility and will begin production in late 2013 / early 2014. The larger scope commercial roll-out of this technology for cellulosic ethanol is only possible if there is adequate market availability for the new gallons of production – maintaining the RFS as-is ensures the necessary market.

#### **Conclusion**

In conclusion, the RFS has been a significant success and—left as it is—will provide even more greenhouse gas, economic, energy security, and air quality benefits. POET believes that the complete fruition of the RFS can be experienced in the U.S. and all the related environmental and energy independence and security benefits reaped with support from both the EPA and Congress specifically in the following areas:

- 1) An increased production and sale of Flexible Fuel Vehicles
- 2) Expanded alternative fuel (e.g. E85 and MLEB) retail distribution infrastructure
- 3) Widespread sale of E15 (i.e. E11 to E15)

POET would welcome the opportunity to further discuss these issues and solutions to the nation's transportation energy needs.

Sincerely,

Kyle Gilley

Senior Vice President of Public Policy and Corporate Affairs

POET, LLC



April 4, 2013

Committee on Energy and Commerce  
U.S. House of Representatives

To Whom It May Concern:

I am writing to respond to the March 20<sup>th</sup> Renewable Fuel Standard Assessment White Paper on Blend Wall/Fuel Compatibility Issues, especially in regards to question 6 of the Stakeholder Comments:

*6. Could the blend wall be delayed or prevented with increased use of E-85 in flexible fuel vehicles? What are the impediments to increased E-85 use? Are there policies that can overcome these impediments?*

As the West Coast's largest retailer of E85, we at Propel Fuels believe that E85 has a significant role to play in meeting the goals of the RFS. In our home state of California we have watched sales of E85 skyrocket over the last few years; in December of 2009, our network of stations sold only about 35,000 gallons per month. By December of 2012, that number was nearly 325,000 gallons per month. By station, this has represented a growth of nearly 120% (Propel's station network has expanded rapidly as well). While the overall volumes pale in comparison to the region's monthly ethanol volumes (primarily used for E10 blends), this growth trajectory has significant implications, and suggests that E85 will play a much larger role in meeting volumetric requirements of the RFS than at present.

In a paper released in March<sup>1</sup>, oil economist Phil Verleger points to increased sales of E85 as an easy path to meeting RFS requirements: "The obvious solution to the RIN price problem involves no EPA intervention and no regulatory action at this point. It simply calls for boosting E85 sales." He concludes that if market share increases to 5% at the current RIN price, the additional RINs created by the higher ethanol blend will result in a surplus that could drop E85 prices to roughly 65% of that of conventional gasoline. Such a shift, even at a lower market penetration, would create a huge surge in demand. Goldman Sachs echoed Mr. Verleger's finding in its own report this week<sup>2</sup>, highlighting the availability of 10 million flex fuel vehicles on the road today.

RIN pricing does indeed present an opportunity to increase demand for E85, but impediments still exist for expanded use. The most significant challenge is limited consumer access. California has fewer than 60 public retail fuel stations that offer E85, compared to estimates of 1 million flex fuel vehicles in the state. Propel is working hard to address that challenge and plans to expand our network to 200 California stations by the end of 2016. We are able to fund this expansion with the help of grants from the Department of Energy and the State of California. Such funds are crucial in expanding access to E85 across the state.

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<sup>1</sup> Philip K. Verleger. "The Price of RINs: How High! How Stupid!"  
[http://www.pkverlegerllc.com/assets/documents/The\\_Price\\_of\\_RINs.pdf](http://www.pkverlegerllc.com/assets/documents/The_Price_of_RINs.pdf)

<sup>2</sup> "Goldman Sachs Sees Little Hope of EPA Action on RINs, Outlines Route for E85" Oil Price Information Service.  
April 5, 2013



Other challenges include consumer awareness and local permitting challenges that arise from lack of awareness of the fuel's requirements. Propel has developed outreach efforts to educate drivers in our local markets, but smaller "mom and pop" E85 retailers may not have similar capacity. Drivers are not the only ones unfamiliar with E85; despite approval from state agencies, local permit approval agencies often struggle to understand equipment regulations. We believe that this impediment could be overcome by additional support for agency training and the completion of nation-wide equipment standards.

Access and awareness are challenges that our industry is working to overcome; however we believe that Congressional policy could potentially have the most significant impact on drivers' choice at the pump. By questioning the volume requirements under the RFS, Congress has already impacted investor confidence. Should Congress demand that the EPA change the existing levels, Propel and other E85 retailers could be forced to delay station network expansions. We believe that the best policy is to leave the RFS alone, and provide investors certainty that E85 sales growth will continue.

Reaching the blend wall with E10 will not inherently result in economic harm to consumers—E85 offers an available option for refiners to create more RINs while increasing the value of an existing, clean fuel to flex fuel drivers. At Propel we are committed to passing that value along to consumers, and look forward to continuing our mission of expanding access to petroleum alternatives.

Thank you for the opportunity to comment. I look forward to answering any additional questions you may have.

Sincerely,

A handwritten signature in black ink, appearing to read "Esther Perman", written over a horizontal line.

Esther Perman

Government Relations

Propel Fuels

690 Broadway

Redwood City, CA 94063



April 5, 2013

**Via Electronic Filing**

Committee on Energy and Commerce  
U.S. House of Representatives  
Washington, DC

ATTN: Ben Lieberman & Alexandra Teitz

Re: Request for Comment on the Renewable Fuel Standard Blendwall/Fuel  
Compatibility Issues

Dear Sir or Madam:

Renewable Energy Group, Inc. (REG) appreciates the opportunity to present comments to the Committee on Energy and Commerce on the Renewable Fuel Standard (RFS) Blendwall. RFS was expanded as part of the Energy Independence and Security Act of 2007 (EISA) (P.L. 110-140), which also created specific requirements for advanced biofuels, including biomass-based diesel. In so doing, Congress sought to further incentivize U.S. production and use of these fuels such as biodiesel. This policy has been an overwhelming success in the biodiesel sector, and has resulted in significant job creation and energy security benefits.

As a leading advanced biofuel producer, we have a strong interest in the continued success of the RFS. We support efforts to fully implement RFS program requirements. REG currently has more than 225 million gallons of annual biodiesel production capability at seven biorefineries and distribution capabilities at nineteen terminals across the country. We plan to build upon our leadership in the biodiesel industry and expand into the production of additional advanced biofuels. The experience REG has gained over the last 17 years in the biofuels industry, uniquely qualifies us to share comments on the RFS with you.

As E&C noted, the ethanol blend wall, "the limit at which ethanol can be readily added to the gasoline supply in order to comply with the RFS", is rapidly approaching. That said - Congress wisely designed the RFS to incorporate fuel diversity such as a biomass-based diesel requirement to help meet its goal of 36 billion gallons of biofuel consumption by 2022. One potential solution to the blendwall problem is utilizing this option to develop an increasingly higher biomass-based diesel Renewable Volume Obligation (RVO), which would have the benefit of mitigating the impacts of the ethanol blendwall. This is due to biomass-based diesel's utility in meeting RFS requirements: higher biomass-based diesel requirements diminish the need for large quantities of foreign-produced sugarcane ethanol to meet undifferentiated



advanced biofuels requirements. In short, increasing biodiesel's RFS profile helps domestic biofuel producers and further diversifies America's alternative fuel supplies.

Unlike ethanol, biodiesel is not facing a blendwall problem. As a recent article noted, while "the ethanol industry struggles with hitting its blend wall, biodiesel penetration in the 2012 U.S. diesel fuel supply was only 1.9 percent. Given that all major OEMs support B5 (blends and higher), achieving a 5 percent biodiesel penetration rate would mean nearly 3 billion gallons of biodiesel production (almost three times greater than 2012 production volumes). Moreover, nearly all the biodiesel used in the U.S. today is consumed by heavy-duty applications, a growing number of which support B20. To reach 20 percent penetration, the U.S. would need to produce 11.5 billion gallons of biodiesel, 10 times more than produced last year."<sup>1</sup>

Moreover, a National Biodiesel Board document highlights strong and growing support for biodiesel blends. A National Biodiesel Board OEM support document highlights these developments, "all major OEMs producing diesel vehicles for the U.S. market support at least B5 and lower blends and 79 percent of U.S. manufacturers now support B20 or higher biodiesel blends in at least some of their equipment."<sup>2</sup>

EPA recently recognized the significant contribution of biomass-based diesel to RFS goals in its 2013 Renewable Volume Obligation (RVO) proposal to increase the biomass-based diesel 2013 Renewable Volume Obligation (RVO) to 1.28 billion gallons. In 2012, the biomass-based diesel industry exceeded the 1 billion gallon RVO by 150 million gallons.<sup>3</sup> In 2013, researchers and analysts predict that the biodiesel industry is capable of producing up to 1.75 billion gallons.<sup>4</sup> Given this production potential, the biodiesel industry should easily satisfy the 1.28 billion gallon RVO for biomass based diesel. Moreover, with well over 2 billion gallons of annual domestic capacity<sup>5</sup>, yield growth in oil seeds<sup>6</sup> production and fewer exports of fats and oils<sup>7</sup> there is plenty of room for biomass-based diesel production volumes to quickly grow.

The biodiesel industry has demonstrated its capability and capacity to meet increasing biomass-based diesel targets beyond the 1.28 billion gallons called for in 2013. REG also looks forward to continuing to work with all stakeholders, public and private, as we move forward with RFS goals

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<sup>1</sup> Ron Kotrba, *Growing biodiesel use in the existing consumption model*, BIODIESEL MAGAZINE (March 6, 2013), <http://www.biodieselmagazine.com/blog/article/2013/03/growing-biodiesel-use-in-the-existing-consumption-model>.

<sup>2</sup> OEM Support, NATIONAL BIODIESEL BOARD (September 2012), [http://biodiesel.org/docs/ffs-engine\\_manufacturers/oem-warranty-positions.pdf?sfvrsn=12%29](http://biodiesel.org/docs/ffs-engine_manufacturers/oem-warranty-positions.pdf?sfvrsn=12%29).

<sup>3</sup> 2012 RFS2 Data, ENVIRONMENTAL PROTECTION AGENCY (January 7, 2013), <http://www.epa.gov/otaq/fuels/rfsdata/2012emts.htm>.

<sup>4</sup> JOHN M. URBANCHUK, ECONOMIC IMPACT OF REINSTATING THE BIODIESEL TAX CREDIT THROUGH 2013 (2012).

<sup>5</sup> Monthly Biodiesel Production Report, ENERGY INFORMATION ADMINISTRATION (March 28, 2013), <http://www.eia.gov/biofuels/biodiesel/production/>.

<sup>6</sup> J. Alan Weber, Founding Partner, MARC-IV Consulting, Presentation at the 2012 National Biodiesel Conference and Expo Sustainability Symposium: Biodiesel Industry Growth—A Real World Fairytale (February 8, 2012).

<sup>7</sup> U.S.D. A. Foreign Agricultural Service (March 28, 2013), <http://www.fas.usda.gov/gats/default.aspx>.



and requirements. Please don't hesitate to contact Anthony Hulen (Anthony.Hulen@REGI.com) or myself (Jonathan.Hackett@REGI.com) if you have any questions.

Sincerely,

Jonathan W. Hackett  
Director, Federal Affairs & Policy  
Renewable Energy Group, Inc.



April 5, 2013

The Honorable Fred Upton  
Chairman  
Committee on Energy and Commerce  
U.S. House of Representatives

The Honorable Henry Waxman  
Ranking Member  
Committee on Energy and Commerce  
U.S. House of Representatives

Dear Chairman Upton and Ranking Member Waxman:

The Renewable Fuels Association (RFA) is the national trade association representing the U.S. ethanol industry. The RFA appreciates the opportunity to respond to the questions posed in the white paper, "Examining 'Blend Wall' Challenges," as part of the Committee's review of the Renewable Fuel Standard (RFS).

In short, the RFA believes the "blend wall" is a creation of the oil companies' failure to respond appropriately to the very clear market signal given upon passage of the Energy Independence and Security Act of 2007 (EISA), a bill they vehemently opposed and are seeking to re-litigate today. By refusing to make (or allow their franchisees to make) the investments necessary to provide market access to increasing volumes of renewable fuels, they hope to create a self-fulfilling prophecy that the RFS targets cannot be met. One, Congress should not reward such blatant disregard for the law. Two, there is nothing wrong with the RFS that cannot be fixed with what is right with the RFS, and that includes the blend wall. As the "cost of compliance" increases, the incentive to make or allow the necessary investments to scale the blend wall will triumph. That is particularly true because the "cost" of providing marketplace access to larger volumes of renewable fuels is actually quite low. E15 is a legal fuel being sold successfully today by a small but increasing number of gasoline marketers willing to challenge their franchisors and suppliers in the interest of providing a lower cost, higher octane fuel to their consumers. And E85 pumps are increasing as well today as the economics of ethanol become more attractive with every predictable rise in consumer gasoline prices.

It is important to note at the outset that overcoming the "blend wall" issue is most critical to the success of cellulosic and advanced biofuels just now beginning their journey toward commercialization. Those next generation fuels need the assurance of market demand beyond the E10 blend market to attract investors. Leaving the market artificially constrained further limits market opportunities for next generation biofuels, missing an opportunity to meaningfully increase America's use of renewable fuels and reduce our dependence on imported oil.

Below please find RFA's responses to questions set forth by the Committee on blend wall challenges.

**1. To what extent was the blend wall anticipated in the debate over the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007?**

In creating a market for 36 billion gallons of renewable fuels, Members of Congress most certainly knew in 2007 that such a large volume of fuel could not be absorbed by the gasoline market expected in 2022 without changes to the vehicle fleet and fuel distribution infrastructure. While nobody anticipated that gasoline demand would fall as it has, largely in response to the skyrocketing oil and gasoline prices in 2008 that precipitated a world-wide recession, there was absolutely an expectation that renewable fuels would have to move beyond just being a blend component in gasoline. Indeed, that was the intent.

By early 2009, it was clear that the arrival of the so-called E10 blend wall may occur sooner than was expected in 2007. In fact, in the analysis that accompanied EPA's proposed rule for the RFS2, the Agency wrote, "...under the proposed RFS2 program, we are projected to hit the E10 'blend wall' of about 14-15 billion gallons by 2013."<sup>1</sup> EPA's final rule for the RFS2 underscored this point again, stating, "...the nation is expected to hit the blend wall in 2013 under our high-ethanol control case [and] in 2014 under our primary mid-ethanol control case.... Regardless, to meet today's RFS2 requirements using increased volumes of ethanol we are going to need to see growth in FFV and E85 infrastructure and increases in FFV E85 refueling rates."<sup>2</sup> To suggest that the blend wall was not anticipated to occur in the 2013/14 timeframe is simply not truthful.

The RFS was intended to drive innovation in technology by fostering investment in cellulosic ethanol and other advanced biofuels. It has done that. While slower than hoped, commercialization of these new technologies is occurring today. The RFS was also intended to drive innovation in the marketplace, with E85 and other blends providing consumers choice at the pump. In fact, the auto companies responded to that policy objective by expanding their production of flexible fueled vehicles (FFVs) that can use up to 85 percent ethanol. Fifty-percent of the automobiles produced by domestic auto manufacturers are FFVs today, and there are now greater than 15 million FFVs on the road. If those vehicles had consistent access to E85 infrastructure, they could consume some 6-7 billion gallons of ethanol on an annual basis. The problem, of course, is that refiners and their downstream partners have fought the introduction of E85 at every turn, refusing to invest in E85 infrastructure, discouraging their franchisees from making such investments or offering non-branded products to consumers.

The bottom line is that Congress knew EISA would require the marketplace to adapt to the increasing demand for renewable fuels, far beyond ethanol's use as a blend component. The renewable fuels industry responded by increasing production and making investments in new technologies. The auto industry responded by dramatically increasing their production of FFVs. But the oil industry has thus far steadfastly refused to provide the market access necessary to meet the EISA volumes, coming to Congress now for relief from a problem they have created!

**2. What are the benefits and risks of expanded use of E-15 to automakers, other gasoline powered equipment makers, refiners, fuel retailers, and others involved in the manufacture and sale of gasoline and gasoline-using equipment?**

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<sup>1</sup> EPA. May 2009. "Draft Regulatory Impact Analysis: Changes to Renewable Fuel Standard Program." EPA-420-D-09-001

<sup>2</sup> EPA. February 2010. "Renewable Fuel Standard Program (RFS2) Regulatory Impact Analysis." EPA-420-R-10-006



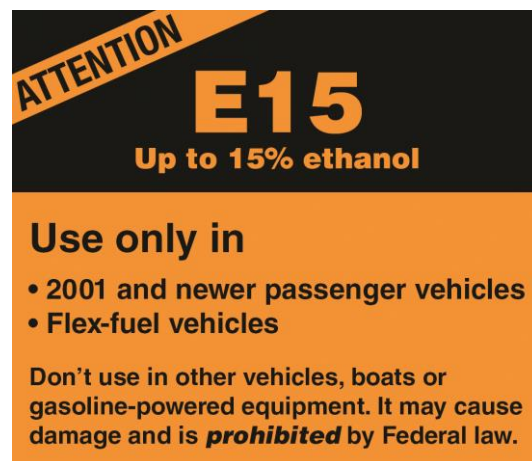
Ethanol helps cars run better. It is a natural, biodegradable high octane additive. It helps reduce engine knock and pinging while also removing gum and other deposits from fuel systems. It helps prevent gasoline lines from freezing in the cold of winter. And because of its high oxygen content, it reduces carbon monoxide, exhaust hydrocarbons and toxics in gasoline. Finally, because it is renewable, ethanol is the only liquid transportation fuel that reduces greenhouse gas emissions, as much as 30-50 percent compared to gasoline.

For refiners, because of ethanol's high octane value, refineries don't have to run reformers as severely, producing fewer toxics and extending the barrel of oil. Thus, the cost of gasoline is reduced for consumers. Studies have concluded that both because ethanol is cheaper than gasoline and because it extends gasoline supplies, the price of gasoline is as much as \$1.09 lower per gallon than it would be without ethanol, saving the average American family more than \$1,200 on their gas bill for the year (Attachment 1). E15 would only expand those benefits to refiners and consumers alike.

**3. What are the risks of the introduction and sale of E15 to the owners of pre-2001 motor vehicles, boats, motorcycles, and other gasoline-powered equipment not approved to use it? Are there risks to owners of post-2001 vehicles? How do these risks compare to the benefits of the RFS?**

There has been so much manufactured hysteria surrounding the introduction of E15, we appreciate this question. Fact: E15 has been the most studied fuel EPA has ever evaluated as part of a 211(b) waiver process. Fact: the Department of Energy conducted E15 tests involving 87 vehicles of all types and models with NO emissions, materials compatibility, durability or driveability problems being identified. Fact: Brazil has used blends of up to E25 for more than a quarter century without any of the engine issues suggested by the API-funded 3-car test. Fact: a report by the world-renowned automotive engineering firm, Ricardo Inc., concluded that if E15 is approved for 2001 and newer vehicles, there would be no emissions, materials compatibility or regulatory reason not to approve it for older vehicles. Nonetheless, out of an abundance of caution, and because testing for the full useful life of the vehicle could not be completed on cars having already exceeded their full useful life, the EPA decided to limit approval to those vehicles for which they had actual testing data.

EPA's Misfueling Mitigation Rule requires gasoline marketers offering E15 to label the pumps conspicuously. Beyond that, EPA requires a public education campaign, special treatment on product transfer documentation, and an industry-funded, independent national survey to assure compliance. The Renewable Fuels Association has published and distributed a detailed "E15 Retailers Handbook" for gasoline marketers walking them through all of the steps necessary to properly label pumps and protect against misfueling (Attachment 2). As a consequence, we do not believe that misfueling will occur. Nonetheless, based on the testing that has been done, the decades of experience in Brazil, where E25 is the only fuel available for small and marine engines, and the absence of engine issues through the first 9 months and estimated **30 million miles driven** on E15 use in this country, we do not believe there will be any risk to those engines from the extremely rare and inadvertent blending of E15.<sup>3</sup> Importantly, there is not a scintilla of data to suggest that the one-time misfueling of E15 would pose a risk for a non-approved engine.



<sup>3</sup> As of April 1, 2013, 21 retail gasoline stations are offering E15. The average length of time that these stations have been selling E15 is four months. These retailers report that E15 has, on average, constituted 20% of total

#### 4. What is the likely impact, if any, of the blend wall on retail gasoline prices?

As gasoline prices across the country continue to climb, threatening household budgets and economic recovery alike, ethanol continues to provide consumer savings at the pump. Today, ethanol is priced approximately \$0.60-0.70 per gallon below the wholesale costs of gasoline. Beyond its gasoline displacement benefit, as ethanol now represents 10 percent of the nation's motor gasoline supply, it has greatly reduced the need for oil imports and provided a macroeconomic benefit to gasoline prices. Depending on the study you choose, the increased use of ethanol in 2011 saved consumers between \$0.89 and \$1.09. Those savings would only be enhanced by the use of ethanol in higher blends.<sup>4</sup>

Recently, oil companies have suggested that increased prices for conventional ethanol RINs (Renewable Identification Numbers) are leading to higher gasoline prices at the pump. Some have even deceptively claimed RINs are adding as much as \$0.10 per gallon to the retail price of gasoline. This assertion is completely absurd and was recently completely dismissed by a comprehensive analysis by Informa Economics (Attachment 3). The Informa report concludes that ethanol continues to sell at a discount to gasoline and continues to offer savings at the pump, even when the impact of higher RIN prices is considered.

The Informa analysis found RINs are likely contributing no more than \$0.004 (four-tenths of one cent) to the retail price of a gallon of gasoline. Meanwhile, ethanol's wholesale discount to gasoline in 2013 has reduced the pump price for blended gasoline by an average of \$0.044 per gallon. Thus, when the net impact of both RIN costs and ethanol's discount to gasoline are considered, ethanol-blended gasoline is saving consumers an average of \$0.04 per gallon based on straight blending economics. This savings doesn't take into account either the indirect benefit that ethanol has on gasoline prices by effectively lowering demand for crude oil and clear gasoline or the enhanced octane value of ethanol over gasoline.

High gasoline prices in early 2013 can be explained by several factors unrelated to the RFS, RINs, or ethanol use. According to Informa, "[t]here is a distinct seasonal pattern to gasoline prices and crack spreads," adding that "[t]he increase in gasoline prices and crack spreads during the first quarter of 2013 has been generally consistent with increases experienced in 2011 and 2012, despite the fact that conventional ethanol RIN prices averaged \$0.03 during the first quarter of 2011 and \$0.02 during the first quarter of 2012." A Department of Energy analysis notes that higher gasoline prices have stemmed from planned and unplanned refinery maintenance; the low starting level for gasoline crack spreads going into 2013; preparation for seasonal fuel specification changes; and developments in global product demand – NOT ethanol, the RFS or RIN prices.

Further, examining the timing of the increase in RIN prices relative to the timing of the recent increase in retail gasoline prices shows that the two events are completely unrelated. Figure 1 below shows

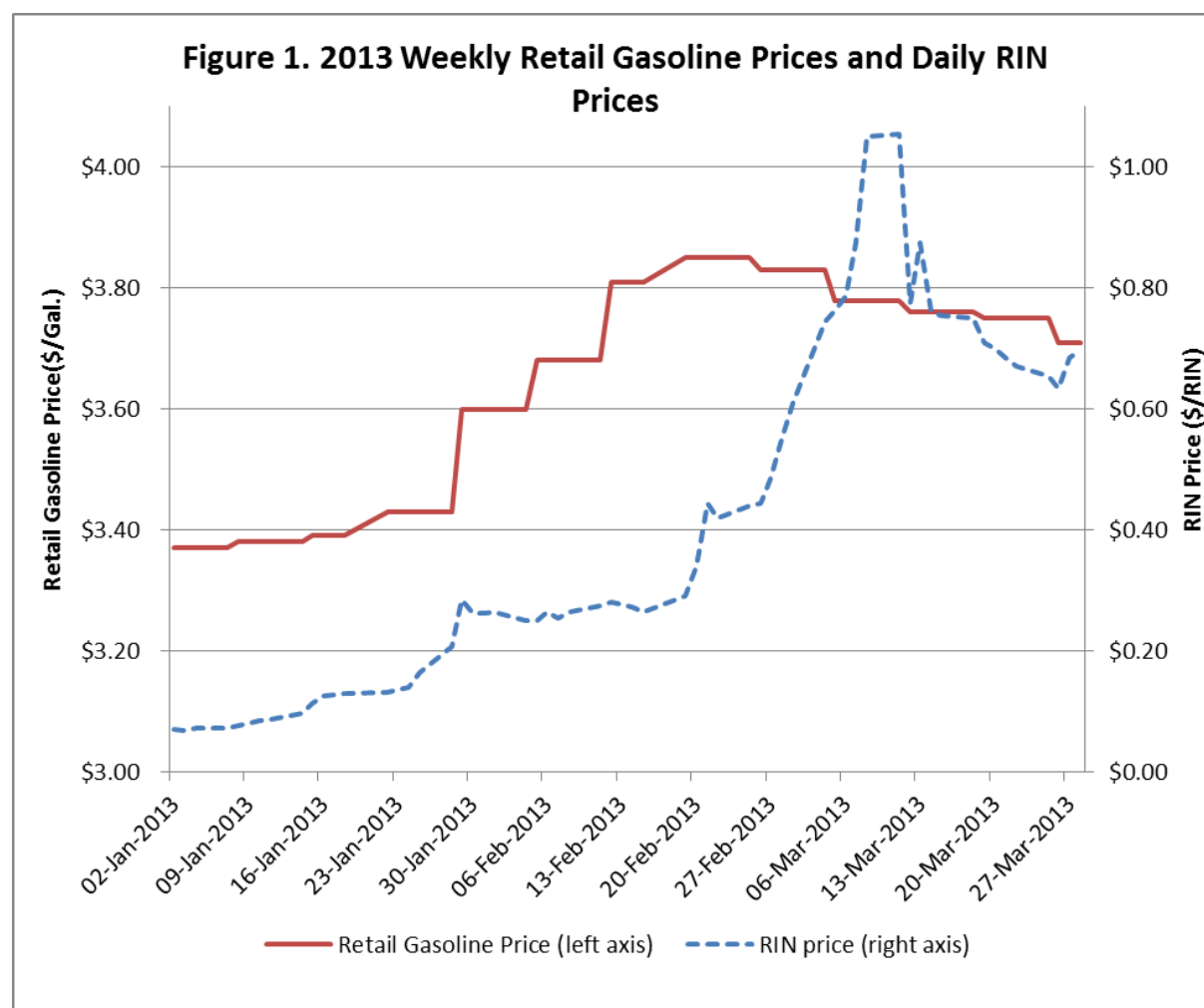
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gasoline sales. According to government and industry statistics, the average retail station sells approximately 85,000 gallons of gasoline per month. Thus, we estimate approximately 1.45 million gallons of E15 have been sold to date. Assuming an average of 21 miles per gallon of E15, this amount of E15 is enough fuel to drive roughly 30 million miles.

<sup>4</sup> See, for example, Hayes, Dermot J., Du, Xiaodong (May 2012) *The Impact of Ethanol Production on U.S. and Regional Gasoline Markets: An Update to 2012*. *Center for Agricultural and Rural Development (CARD)*. <http://www.card.iastate.edu/publications/dbs/pdffiles/12wp528.pdf>; and Marzoughi, Hassan and Kennedy, P. Lynn. February 2012. *The Impact of Ethanol Production on the U.S. Gasoline Market*. <http://ageconsearch.umn.edu/bitstream/119752/2/Kennedy%20Marzoughi%20SAEA%20-%202012.pdf>



that retail gasoline prices and RIN prices were generally stable and flat through much of January. Gasoline prices shot up at the end of January, as crude oil prices surged and gasoline crack spreads widened. Gasoline prices continued to steadily escalate over the first three weeks of February, while RIN prices were flat. Then, near the end of February, retail gasoline prices peaked and began to ease. Indeed, gasoline prices were steadily falling when RIN prices temporarily spiked in mid-March. Gasoline prices continued to fall after the RIN spike, and RIN prices have also moderated. Clearly, there was no correlation between the February surge in gas prices and the mid-March spike in RIN prices.



**5. What is the timing of the implementation challenges related to the blend wall? Will some entities face difficulties earlier than others?**

The only “entity” facing difficulties from the blend wall today is the U.S. ethanol industry that has had to shut down approximately 12-15 percent of its production capacity because it has been denied access to the marketplace. That can be remedied, however, as long as the RFS stays in place and is allowed to work as intended, creating the economic incentive for gasoline marketers to install the infrastructure necessary to blend E85, E15 or other higher blends. Today’s market for RINs will provide that incentive. In response to higher RIN prices, we have already seen increased E85 use, and renewed

interest in E15. That is the genius of the RFS, the credit system not only provides flexibility, but it also provides the incentive to drive innovation in the marketplace.

The market-driving benefit of the RFS credit program was recently affirmed by BP Biofuels CEO Phil New, who stated:

“[t]he conventional RIN markets are responding to the blend wall – exactly as could have been anticipated. The RIN markets are now starting to incentivize all members of the value chain to seek ways to resolve the blend wall. What had become a static, entrenched relationship is now starting to look much more fluid, as the incentives provided by the RIN markets provide a real prompt to innovation – not just on the supply side, but for the better demand side players as well.”<sup>5</sup>

Similar comments have come from oil industry economist Phil Verleger, who said:

- “In short, no RIN problem exists. Instead, the trouble has been created by the stubborn resistance of some refining companies...to the RFS program.”
- “...refiners have resorted to “export blackmail” rather than try other solutions. One of these would be sales of E85 (85:15 ethanol/gasoline), which would alleviate the problem.”
- “...the obvious solution to the RIN price problem involves no EPA intervention and no regulatory action at this point. It simply calls for boosting E85 sales.
- “Refiners and marketers could meet their RFS requirements by boosting E85 sales.”<sup>6</sup>

The message is clear. Let the RFS work and solutions to the blend wall will be found!

**6. Could the blend wall be delayed or prevented with increased use of E-85 in flexible fuel vehicles? What are the impediments to increased E-85 use? Are there policies that can overcome these impediments?**

Viable options exist for breaking through the E10 “Blend Wall” and meeting RFS requirements with physical ethanol volumes instead of paper RIN credits. E15 and E85 blends are legally approved and offer a workable pathway for meeting increased RFS volumetric requirements. Only slight increases in E15 consumption would be needed in 2013 to satisfy this year’s RFS obligations with physical gallons rather than banked RINs. If E15 accounted for **just 1 percent** of total gasoline sales in 2013, the RFS requirement for renewable fuel could be met strictly with physical gallons of ethanol.<sup>7</sup>

The Regulatory Impact Analysis that accompanied the RFS2 final rule includes a detailed assessment of the costs to modernize fuel distribution infrastructure to accommodate higher-level ethanol blends under the RFS. Notably, the analysis is based on input from petroleum terminal operators, the rail industry, the marine transport sector, the trucking industry, retail gas station owners, manufacturers of fuel storage and dispensing equipment, and other industry sources.

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<sup>5</sup> 8th Annual World Biofuels Markets, Beurs World Trade Center, Rotterdam, Netherlands, March 13, 2013, Biofuels Digest.

<sup>6</sup> Philip K. Verleger, Jr., President, PKVerleger LLC. “The Price of RINs: How High! How Stupid!” March 2013.

<sup>7</sup> Assumes gasoline demand of 133.8 billion gallons, 13.38 billion gallons of ethanol use at E10, and 200 million gallons of ethanol use at E85. Thus, 220 million gallons of ethanol would need to be consumed as E15 to meet the 13.8 billion gallon RFS requirement for “renewable fuel.” This means 1.47 billion gallons of E15 would need to be consumed, which equates to 1.09% of projected gasoline demand. Does not account for impact of sugarcane ethanol imports that may be used to meet advanced biofuel standard.



One scenario in the analysis examined the cost of upgrading the fuel distribution system from handling a baseline of 13.2 billion gallons of ethanol annually to accommodating 33.2 billion gallons of ethanol — a 20-billion-gallon increase. The results of this scenario indicated a total capital investment of \$9.9 billion would be necessary to modernize the terminal, fuel transportation and retail infrastructure. According to the analysis, *that works out to just 6 cents of capital investment per gallon of additional ethanol use over the baseline.* When amortized over total gasoline sales, the infrastructure costs would be *fractions of a cent per gallon.* These costs include construction of new rail cars, new tank barges, new tank trucks, new and retrofitted storage tanks and blending equipment at petroleum terminals, unit train receiving infrastructure, manifest rail receipt facilities, and marine terminal infrastructure. Additionally, the estimate includes the costs to outfit retail stations for higher-level blends, including installation of new dispensers, hanging hardware, refueling island hardware, automatic tank gauging equipment, canopy installation, underground storage tanks, and other retail infrastructure.

All of this means the higher-ethanol blend infrastructure necessary to bridge the gap between the infamous E10 "blend wall" (approximately 13.3 billion gallons) and the 2013 RFS requirement of 13.8 billion gallons would cost about \$30 million — or \$0.00023 per gallon of expected 2013 gasoline sales.

While we believe the RFS itself does provide the policy support to encourage investment in technologies to drive the market to greater renewable fuel use, the RFA does continue to support bipartisan legislation requiring automakers to produce fewer gasoline-only vehicles. The Open Fuel Standard promoted by Representatives John Shimkus (R-IL) and Elliot Engel (D-NY) would assure more FFVs, electric cars and natural gas vehicles to dramatically reduce our dependence on imported oil.

**7. Is E-15 misfueling unavoidable? Are there lessons from the labeling and dispensing of diesel, E-85 and other fuels that prevent their misfueling that can also be applied to E-15? What specific actions are companies taking to address potential misfueling concerns under MMPs?**

The EPA approved E15 blends to for use in cars, pickups and SUVs built in 2001 and later, or about two-thirds of the vehicles on the road today. E15 is a safe fuel, as evidenced by the fact auto manufacturers are now providing warranty coverage for it. Today, more than 40 model year 2012 and 2013 vehicles include E15 in the fuel recommendations section of the owner's manual.

EPA's rulemaking approving E15 for only certain engines did raise issues regarding the potential for misfueling. As noted earlier, the RFA has been sensitive to those concerns and worked diligently with EPA and stakeholders to assure that E15 is only used by consumers with 2001 and newer vehicles. The RFA has developed the only Misfueling Mitigation Plan approved by EPA. That plan must be adopted by gasoline marketers before they can legally offer E15 for sale. The RFA has published and distributed an E15 Retailer Handbook taking marketers through all of the steps necessary to properly handle E15 – from which underground storage tanks are approved for E15 to proper labeling language and placement to registration and reporting to EPA. The RFA has also helped organize a public outreach campaign to inform consumers about the use of E15. We want E15 to be used, but we want it to be used safely and within the bounds of EPA's approval.

Toward that end, the RFA has responded to concerns raised by various stakeholders, including motorcyclists and small engines, and sought and received approval from the EPA for additional flexibility for retailers offering E15, ensuring that gasoline with up to 10 percent ethanol is available at each station when also offering the higher octane fuel E15. The new configuration will eliminate the

need for a four-gallon minimum fueling transaction when E15 is sold from the same hose as E10, E0 or both. Advocates for motorcyclists and small engines had expressed concern that EPA's four-gallon minimum requirement would make it difficult for those low volume customers to find fuel appropriate for their vehicles. Those concerns have now been eliminated. The configuration approved by EPA will recommend that retailers either sell E15 from a dedicated hose, or have at least one fueling position that does not have E15 available. This fueling position will be clearly identified, and other fueling positions will direct those seeking that option to the right place. EPA may ultimately approve more configuration options in the future. The U.S. ethanol industry clearly heard stakeholders' concerns and we moved quickly to address them.

**8. Can blend wall implementation challenges be avoided without changes to the RFS? Is the existing EPA waiver process sufficient to address any concerns? If the RFS must be changed to avoid the blend wall, what should these changes entail? Should any changes include liability relief or additional consumer protections for addressing misfueling concerns?**

The RFA fundamentally and vehemently does not believe changes need to be made to the RFS to address the blend wall. The original legislation, which included a dynamic credit trading mechanism, will drive the innovation needed to scale the blend wall as long as Congress leaves it in place.

Similarly, we believe the existing waiver provisions are sufficient to address any legitimate concern that the RFS requirements cannot be met. The various waiver provisions afford EPA the ability to administratively adjust RFS requirements on an annual basis in light of prevailing fuel market and economic conditions (for a summary of RFS flexibility provisions, see Attachment 4). EPA has exercised this waiver authority each and every year since the RFS2 became effective with respect to cellulosic biofuel requirements. In fact, EPA has waived more than 97 percent of the cellulosic biofuel requirements since 2010.

EPA is also empowered by the statute to waive any part of the RFS if the Administrator determines the program is causing "severe harm" to the economy or environment, or if there is "inadequate domestic supply." States and parties subject to RFS requirements may also petition the Administrator to consider waiving the RFS, in whole or in part, based on these criteria. EPA has twice received such requests from states to partially waive the RFS requirements; both times EPA denied the waiver requests, due in significant part to the extraordinarily large stocks of surplus RIN credits and the significant compliance flexibility afforded to obligated parties.

Finally, as noted earlier, we believe EPA's Misfueling Mitigation Rule and the RFA's own efforts to inform consumers and gasoline marketers alike of the proper use of E15 are adequate protections against misfueling.

**9. Have the 2017 and Later Model Years Light Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy standards for cars and light trucks changed the implementation outlook of the RFS?**

Yes. The new CAFE/GHG standards may actually lead to another option to meet RFS obligations through the use of higher octane fuels. A recent paper published by Ford Motor Company (**Attachment 5**) concludes that one means of meeting the new CAFE/GHG standards is through the use of direct injection and higher compression ratio engines. Such engines would require a higher octane motor fuel, and the most cost effective octane booster available today is ethanol. According to the Ford paper:



- “The physical properties of ethanol provide important benefits when added to gasoline. Ethanol has both a higher octane rating and a higher heat of vaporization than typical gasoline.”
- “Ethanol improves octane ratings when added to gasoline. The RON and AKI of pure ethanol are approximately 109 and 99, respectively, much higher than regular or premium-grade US gasoline.”
- “Higher minimum octane ratings for regular-grade fuel would enable higher compression ratios in future vehicles and is an opportunity to provide greater engine efficiency and meet increasingly stringent fuel economy regulations and expectations.”
- “...it appears that substantial societal benefits could be obtained by capitalizing on the high octane rating of ethanol through the introduction of higher octane number ethanol–gasoline blends to the US marketplace.”

EPA referred to this effect in its recent TIER3 proposed rulemaking, asserting that a high-octane ethanol/gasoline blend “...could help manufacturers that wish to raise compression ratios to improve vehicle efficiency, as a step toward complying with the 2017 and later light-duty greenhouse gas and CAFE standards (2017 LD GHG).”<sup>8</sup>

However, some automakers and supporters of FFVs have expressed concern that the recent CAFE/GHG rule may discourage ongoing production of FFVs beyond 2016. The final rule included generous credits and incentives for the production of some alternative fuel vehicles, like vehicles that operate on electricity and natural gas, but it substantially encumbered the ability of automakers to continue generating compliance credits for FFVs.

#### **10. What other methods, including the use of drop-in fuels, are available to industry to ease the challenge posed by the blend wall?**

While RFA sees promise in “renewable hydrocarbon” fuels and other biofuel molecules like butanol, these technologies generally have not been cost competitive with existing commercial biofuels. Accordingly, there is very little commercial capacity to produce these fuels, aside from modest volumes of renewable diesel. We believe these technologies will become more economical in the future, but large volumes of these biofuels will not be available in the near term as the industry confronts the so-called blend wall. Therefore, growth in E15 and E85 usage will be the most economical and most plausible means of penetrating the blend wall in the near term.

Further, it should be pointed out that no biofuel — regardless of its chemical properties — can simply be “dropped in” the existing petroleum fuel distribution infrastructure. Introduction of any new fuel into commerce requires creation of specifications and standards, substantial testing (e.g., health effects, materials compatibility), and legal registration, before it can be offered for sale to the public. Many of the “renewable hydrocarbon” fuels under development have yet to go through this process.

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<sup>8</sup> EPA. March 2013. “Proposed Rule: Control of Air Pollution from Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards.” Pre-publication version available at <http://www.epa.gov/otaq/tier3.htm>.

**11. What are the impacts on renewable fuel producers if the RFS is changed to avoid the blend wall?**

As noted earlier, the RFA does not believe legislative changes to the RFS program are necessary to address the “blend wall.” The flexibility and market driving mechanisms included in the RFS will ultimately provide appropriate responses. It is already happening as E85 infrastructure expands and marketer interest in offering E15 to consumers is enhanced through compelling economics. To the contrary, amending the RFS right now, at this critical juncture for the development of the fledgling cellulosic and advanced biofuel sector, would send a loud and decidedly negative signal to the investment community that the federal government’s commitment to this program is fickle and create uncertainty that could prove to be a death knell to the continued evolution of the biofuels industry.

Most importantly, Congress needs to consider the consequences of “changing the rules in the middle of the game.” Investments have been made on the basis of a law passed by Congress and regulations promulgated by EPA. As noted, it would send a particularly negative and chilling signal to the investment community if the RFS is interrupted midstream. Without a doubt, it would be a devastating setback to the movement toward cellulosic ethanol and other advanced biofuels, and the nation’s investment in a more secure and diverse energy future.

In addition, adjustments to the RFS could result in the stranding of some existing first generation biofuel assets that have reliably supplied renewable fuels to the American public since the RFS was adopted.

If there is any additional information you would like RFA to provide, please do not hesitate to ask.

Sincerely,

A handwritten signature in black ink, appearing to read "Bob Dinneen", with a stylized flourish at the end.

Bob Dinneen  
President & CEO





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Government Relations  
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Washington, DC, U.S.A.  
202 466 1495

April 4, 2013

Representative Fred Upton  
Chairman  
Committee on Energy and Commerce  
2125 Rayburn House Office Building  
Washington, DC 20515

Representative Henry Waxman  
Ranking Member  
Committee on Energy and Commerce  
2125 Rayburn House Office Building  
Washington, DC 20515

Dear Chairman Upton and Ranking Member Waxman:

Thank you for the opportunity to comment on the Renewable Fuels Standard (RFS) and associated fuel compatibility issues. Attached you will find answers from Shell.

We strongly believe the current RFS must be revised to align the mandates with the capabilities of vehicles and infrastructure and to provide appropriate incentives for cellulosic biofuels. If this is not done, as a result of the blend wall, the RFS will limit the supply of gasoline and diesel in the US and have adverse impacts on consumers and the economy.

Sincerely,

A handwritten signature in blue ink, reading "John E. Reese".

John Reese  
Downstream Policy and Advocacy Manager for North America

Shell appreciates the opportunity to provide input regarding the questions that were raised in the Committee's Blend Wall Whitepaper. Shell is an obligated party under the RFS, and also through a joint venture is an ethanol producer. In addition, Shell continues to pursue opportunities in cellulosic biofuel commercialization.

The RFS must be revised to address the blend wall issue. As explained in more detail below and in the attached one-pager, if the blend wall issue is not appropriately addressed, the RFS will limit supplies of gasoline and diesel fuel for US consumption resulting in potentially severe adverse impacts on US consumers and the economy. In addition, the blend wall has created tremendous uncertainty regarding the future of the RFS.

If the problems with the RFS are not appropriately addressed, there will be no certainty to support the significant investments needed to commercialize cellulosic biofuels, including drop-in biofuels. EPA's use of its waiver authority to address the blend wall problem on a year- by- year basis will not provide the certainty needed to support these investments. Consequently, Shell believes that it is imperative that the law be revised to align the mandates with the capabilities of vehicles and infrastructure and to provide appropriate incentives for cellulosic biofuels.

#### **Questions for Stakeholder Comment**

**1. To what extent was the blend wall anticipated in the debates over the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007?**

Answer: The blend wall was not an issue under the Energy Policy Act of 2005 because the renewable fuel mandate was limited to 7.5 billion gallons. The blend wall problem arises when the mandated levels exceed the ability of vehicles and infrastructure to consume the renewable fuel (i.e., above 10% ethanol). Given that gasoline demand this year is expected to be approximately 133 billion gallons, the blend wall occurs at 13.3 billion gallons.

**2. What are the benefits and risks of expanded use of E-15 to automakers, other gasoline powered equipment makers, refiners, fuel retailers, and others involved in the manufacture and sale of gasoline and gasoline-using equipment?**

Answer: Our comments on this issue are limited to the potential implications for the petroleum industry. Other affected parties are best situated to address their concerns. Our concern is with the potential harm to our customers, the driving public. The automobile manufacturers do not support the use of E15 in 2001 and newer cars unless the cars were designed for use with greater than 10% ethanol (e.g., flexible fueled vehicles), and there are studies issued by the Coordinating Research Council that indicate that E15 may damage 2001 and newer vehicles. EPA thus far has accepted no responsibility for such potential damages, stating that it does not require E15 but rather simply has authorized its use. EPA's authorization of E15 provides no redress for consumer harm and arguably exacerbates both the potential for vehicle damage and the likelihood of consumer litigation against the petroleum industry.

**3. What are the risks of the introduction and sale of E-15 to the owners of pre-2001 motor vehicles, boats, motorcycles, and other gasoline-powered equipment not approved to use it? Are there risks to owners of post-2001 vehicles? How do these risks compare to the benefits of the RFS?**

Answer: Even EPA recognizes that E15 is not compatible with pre-2001 light duty motor vehicles and other vehicles/equipment. This is why EPA issued a partial waiver for 2001 and newer light duty motor vehicles only and excluded other vehicles and uses. Two recent studies by the Coordinating Research Council indicate that E15 may also damage 2001 and newer light duty vehicles. Regardless of notifications on dispensers it is likely that owners of pre-2001 motor vehicles, and other gasoline powered vehicles and equipment would misfuel potentially resulting in engine damage. Based on the CRC research, it appears likely that owners of post-2001 vehicles would also encounter vehicle issues from the use of gasoline containing more than 10 percent ethanol.

**4. What is the likely impact, if any, of the blend wall on retail gasoline prices?**

Answer: Ultimately, unless it is fixed, the blend wall will limit supplies of gasoline and diesel for US consumption. One would expect that as supplies are limited, prices will rise.

As explained in the attached Shell one-pager, the RFS limits the supply of gasoline and diesel fuel for US consumption. The amount of gasoline and diesel fuel that refiners and importers can legally produce or import for consumption in the U.S. is limited by their ability to meet the renewable fuel obligations that are incurred by producing or importing such gasoline or diesel fuel for U.S. consumption. Refiners and importers meet their obligations by acquiring renewable fuel credits, referred to as Renewable Identification Numbers (RINs). Unfortunately, as the renewable fuel mandates escalate, RINs are likely to be in short supply. This will in turn adversely impact supplies of gasoline and diesel fuel for U.S. consumers. To remain in compliance with the law, importers will likely have no option but to reduce imports and refiners will likely have no option but to export gasoline and diesel fuel or reduce production.

The quantity of RINs available for refiners and importers to meet renewable fuel obligations is dependent on U.S. consumption of renewable fuels. Unfortunately, consumption of the renewable fuels will not keep pace with the mandates that the law imposes because the mandates go beyond the amount of renewable fuels that are compatible with vehicles and the infrastructure. As a consequence, RINs will be in short supply.

A recent report issued by NERA indicates that as the blend wall problem spreads, and becomes industry-wide, gasoline prices could rise by 30% and diesel prices could rise by 300%. The rapid rise in RIN prices this year indicates that the blend wall is upon us. There are several factors that are likely influencing the rapid escalation in RIN prices including, most obviously the arrival of the blend wall, fewer rollover RINs from 2012 as compared to previous years because of the ever higher mandates, uncertainty regarding the level of the 2013 standards (EPA is now over 4 months late issuing the 2013 standards) and uncertainty regarding the level of the 2014 standards (obligated parties may be calculating the number of RINs that should be rolled over to 2014 based on the full RFS mandates).



**5. What is the timing of the implementation challenges related to the blend wall? Will some entities face difficulties earlier than others?**

Answer: Recent escalation in RIN prices indicate that the blend wall is having an impact now. The impact will likely spread and accelerate if this is not addressed. Different obligated parties are impacted differently. First to be impacted are merchant refiners and importers that do not have facilities downstream to blend ethanol. These parties have always been primarily if not solely dependent on the RIN market. Integrated companies, like Shell, are directly affected later, as we have capability to blend ethanol and can acquire RINs by doing so. But, as the mandates continue to escalate, the blend wall will spread to the entire industry with the likely consequences explained in the NERA report – unless EPA and Congress act.

**6. Could the blend wall be delayed or prevented with increased use of E-85 in flexible fuel vehicles? What are the impediments to increased E-85 use? Are there policies that can overcome these impediments?**

Answer: Theoretically, increased use of E85 could help to address the blend wall problem, but there are practical problems that make it unlikely. If the price of RINs rises high enough and stays high long enough, that will likely encourage increased use of E85. (At the same time, however, high RIN prices are likely to have an impact on gasoline and diesel imports and exports and retail prices.) In any event, as explained in the NERA report, given the rate at which the mandates increase it is unlikely that increased use of E85 will occur in time to fix the blend wall problem. This is particularly likely to be true given that the overwhelming majority of retail gasoline stations are independently owned and operated and the owner/operators of the retail stations are not obligated parties under the RFS. The majority of retail infrastructure is not compatible with E85. Thus, expanding E85 would require large investments by these independent marketers. That is not likely to happen absent a compelling business case for these marketers, and it is unlikely to occur fast enough to address the blend wall issue, as explained in the NERA report.

**7. Is E-15 misfueling unavoidable? Are there lessons from the labeling and dispensing of diesel, E-85 and other fuels that prevent their misfueling that can also be applied to E-15? What specific actions are companies taking to address potential misfueling concerns under MMPs?**

Answer: Misfueling is likely. But, in any event, the bigger concern is that E15 will be used in 2001 and newer cars and that such vehicles will suffer damage. See Question 2 above.

**8. Can blend wall implementation challenges be avoided without changes to the RFS? Is the existing EPA waiver process sufficient to address any concerns? If the RFS must be changed to avoid the blend wall, what should these changes entail? Should any changes include liability relief or additional consumer protections for addressing misfueling concerns?**

Answer: EPA has some authority to make adjustments to the RFS, and should do so expeditiously. EPA can adjust the advanced and general renewable mandates annually when adjusting the cellulosic mandate. EPA is also required to issue a rulemaking to adjust the overall schedule for the RFS but that particular rulemaking cannot be effective until 2016. However, this authority does not seem to allow

EPA to reduce the mandates to the extent necessary to address the blend wall issue. To reduce the mandates to the level necessary to address the blend wall, EPA would likely have to rely on its general waiver authority, which allows EPA to reduce the mandates, on a year by year basis, due to an inadequate domestic supply or to avoid severe economic harm. The use of such authority on an annual basis would severely undermine the program, as it is likely to undermine public and political support for the program. If this is done, there will be no certainty to support long term investments in cellulosic biofuels. The much better course, to preserve the RFS program, is for Congress to adjust the schedule consistent with the capabilities of vehicles and infrastructure.

**9. Have the 2017 and Later Model Years Light Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy standards for cars and light trucks changed the implementation outlook of the RFS?**

Answer: The new CAFÉ standards will exacerbate the blend wall issue. As vehicles become more efficient, gasoline demand is expected to continue to decline and with it the ability to blend ethanol into gasoline. As such, it will make the problem worse unless EPA and Congress address these issues. The latest projections from EIA, the Annual Energy Outlook 2013 Early Release, include the effect of these efficiency standards and shows year on year reductions in gasoline consumption from 2013 through 2035.

**10. What other methods, including the use of drop-in fuels, are available to industry to ease the challenge posed by the blend wall?**

Answer: Drop-in fuels could be a long term solution. However, they will not be available in sufficient quantities in time to avoid the blend wall problem – the blend wall is here now. Moreover, unless the RFS program is adjusted to fix the blend wall problem, the program will not provide the certainty needed to make long term investments in cellulosic biofuel. This is a key reason why Shell is advocating that Congress must adjust the RFS, rather than simply relying on EPA to make annual adjustments through the use of waivers to avoid severe economic harm.

**11. What are the impacts on renewable fuel producers if the RFS is changed to avoid the blend wall?**

Answer: At this point, regardless of whether there is an RFS or not, ethanol is likely to continue to be blended into gasoline at the 10% level. The infrastructure to blend 10% ethanol has been established and the industry relies on 10% ethanol for octane. The 10% ethanol level is compatible with vehicles and infrastructure. Producers and investors in advanced cellulosic biofuels, will benefit if the RFS is changed to avoid the blend wall. As it stands, due to the blend wall, the RFS provides no certainty for long term investments in cellulosic biofuels. If the program is adjusted such that the mandates are consistent with the ability of vehicles and infrastructure to consume the renewable fuels, and to provide appropriate incentives for cellulosic biofuels, including drop-in biofuels, regulatory certainty would be increased, which in turn would increase the likelihood of investments in such biofuels.